

## The trajectory of Virgínia Schall: integration of Health, Education, Science and Literature



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**Abstract** *This article presents Virgínia Schall's professional career, interrupted very early. It highlights her major role in the integration of the fields of Health, Education and Scientific Dissemination in Brazil. The contextualization of her academic and literary production as a researcher at the Oswaldo Cruz Foundation, demonstrates Virgínia's contribution in strengthening the institution and in the teaching of dozens of researchers and students. With a strong inter- and multidisciplinary approach, she was a pioneer in the field of Health Education, Science Education, and Science Dissemination. Virgínia participated in the implementation of two post graduate courses and regularly worked as consultant for CNPq, CAPES, SVS/MS and the Ministry of Education, consolidating national policies in these areas. Besides being the author of several children's books and educational resources about health, environment and science, Virgínia conceived the Life Museum at Fiocruz-RJ, as a space for integrating science, culture, and society, with focus on science, health, and technology information and education. She was also a poet, member of the Women's Academy of Letters in Minas Gerais, and produced diverse and award-winning poetry and prose literary pieces.*

**Key words** *Health education, Scientific dissemination, Biography, Virgínia Schall*

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*I feel that my longing is a product of my passion for life.* Excerpt from the Poem “Feeling” written by Virgínia Schall.

Virgínia Torres Schall de Matos Pinto or Virgínia Schall (1954-2015) was a pioneer researcher in articulating the fields of Health, Education and Scientific Dissemination in Brazil. Those who had the privilege of knowing the person... women... scientist... poet... story teller... knows that to talk about Virgínia is to describe a person of multiple qualities. With a broad, holistic and interdisciplinary vision, she established connections between various fields of knowledge, contributing to the construction and consolidation of an integrated and innovative academic approach.

Virgínia promoted ideas and *inter-* and *intra-*institutional partnerships, effectively cooperating to the dissemination of science in the country. She assisted in the consolidation of public policies in the areas of health, education and scientific dissemination, by acting in several governmental instances in the definition of priorities in the fields where she was active. Nationally, she was a consultant for the Ministry of Health and Ministry of Education, CAPES, CNPq, FAPERJ e FAPEMIG. Internationally, she participated in comities in the World Health Organization (WHO), *Special Programme for Research and Training in Tropical Diseases* (TDR/WHO) and the Pan-American Health Organization (PAHO); besides being an editor for several national and international scientific journals.

Virgínia was very enthusiastic and supportive of human potential. She was a teacher and supervised more than 100 students, from elementary level to postdoctoral students, who today are now educators and researchers themselves in Brazil and abroad. She was also responsible for implementing and coordinating the Scientific Vocational Program at Fiocruz-RJ, in 1988, and later the Junior Scientific Initiation of CNPq, opening space for high school students to initiate their scientific training early on in their lives. She brought the same program for Fiocruz-Minas.

In addition to being a teacher and researcher, she expressed ideas and feelings in several literary essays and poems, being a member of the Women's Academy of Letters in Minas Gerais. The present text aims to highlight her performance as a producer of knowledge, innovator of practices and congregator of people and wisdom, sadly interrupted by her early death.

### The trajectory of Virgínia Schall: biographical notes

Native in the state of Minas Gerais (MG), from the city of Montes Claros and firstborn of five women, Virgínia was attracted to knowledge from a very young age. In Alvinópolis-MG she studied in a religious school where the nuns were “communist” teachers who practiced Liberation Theology. This contact led to a heightened sensitivity towards social and equity issues, which profoundly marked the professional trajectory of Virgínia in the field of collective health and health education.

Later on, as a researcher and professor, she encouraged a critical view of the “wonders of scientific discovery” and scientific practices, indicating its importance, but also recognizing its incongruities, power relationships and iniquities, inherent to the capitalist system and the organizational forms of society. She always fought to give voice to those who had much to say, but were rarely heard. As exemplified in her poem Silence *...if from words and gestures lives are woven. Silence makes destinies*<sup>1</sup>.

Virgínia graduated in Psychology in 1978 from the Pontifical Catholic University of Minas Gerais. Due to her interest in the biological and physiological aspects of behavior, she became a Scientific Initiation Fellow, scholarship from CNPq, under the supervision of Fernando Pimentel de Souza, who used snails as an experimental model for studying the human brain. In 1975, she won the Young Scientist Award from the Brazilian Institute of Education, Science and Culture for her work on the behavior of the snail *Biomphalaria glabrata*, host of *Schistosoma mansoni*. She continued studying this subject for her Master's Degree in Physiology and Biophysics at Federal University of Minas Gerais (UFMG) (1978-1980).

She moved to Rio de Janeiro in 1980, when she started lecturing at the Department of Physiological Sciences at the Rio de Janeiro State University (UERJ). The next year she went to work at the Oswaldo Cruz Institute (IOC), with an invitation from Pedro Jurberg, a professor from UERJ and researcher at Fiocruz, who studied the behavior of the snail *Biomphalaria Glabrata*.

In 1981, Virgínia became a researcher at Fiocruz which, at that time, had its headquarters located in the then Department of Biology of the Oswaldo Cruz Institute (IOC). In IOC, she was responsible for the creation of the first research

laboratory focused on education and health, accredited in 1990 as the Health and Environmental Education Laboratory (LEAS/IOC). In addition, she actively participated in the conception of the postgraduate course of Teaching in Biosciences and Health, formed in 2004 in IOC.

In LEAS, she inaugurated an area of research focused on the production and evaluation of the use of literary publications for children and adolescents -- *Ciranda da Saúde* (1986), *Ciranda do Meio Ambiente* (1989) and *Ciranda da Vida* (1994). This approach, in a playful way, disseminated issues on health, environment and science, enabling integrated pedagogical work in schools and other non-formal teaching environments. Her work in the interface of Education and Health was inspired by Paulo Freire's Liberating Pedagogy<sup>2,3</sup> and by the socio-constructivist perspective on cognitive development and learning developed by Vygostky<sup>4</sup>.

By integrating literature with themes and practices related to health, Virgínia addressed, in an innovative way, subjects traditionally worked in a decontextualized manner by the sanitary education models of the time. She argued that when talking about health with children it is necessary to associate it with the quality of the water we drink, the air we breathe, the food we ingest, and on how we relate to others and the environment around us. It is necessary, in an appropriate language, to establish a critical dialogue of unbridled consumerism, different living and working conditions, poverty and social inequality, the maintenance of resources for wars in detriment of social and humanitarian investments. The construction of a critical knowledge about health and quality of life starting from childhood is fundamental for the collective transformation of reality and fulfillment of autonomy and self-realization<sup>5</sup>.

In the field of production and innovation of educational strategies, attentive to social changes, Virgínia introduced the theme of Aids in a study with schoolchildren, which resulted in the co-authorship of the educational game Zig-Zaids (1990). It focused on the prevention of STDs/Aids and solidarity among people with HIV/Aids. Patented by Fiocruz (BR PI 9000407) and commercially edited, the Zig-Zaids game was widely used throughout Brazil and distributed by the National STD and Aids Program of the Ministry of Health (100,000 copies)<sup>6</sup>. Virgínia also collaborated in the development of the game *Jogo da Onda* (1998)<sup>7</sup>, a game based on drug use, the game *Trilhas: Descubra o Mapa Cultural e Científ-*

*ico do Rio* (2001), aimed at the dissemination of the cultural and scientific institutions of Rio de Janeiro, and the game *TransAção: sexo e sexualidade na adolescência* (2008) aimed towards teenagers to discuss sexuality, among other games.

This area of research in LEAS resulted in the production, edition and evaluation of a collection of books and games, as well as their use in government programs, became a reference in and outside of Fiocruz. These initiatives reiterate the importance of applied research in the qualification of actions and public policies in the field of education, health and scientific dissemination.

Virgínia was heir to a progressive vision of Health Education in Brazil, established by Hortência de Hollanda<sup>8</sup>, whose fundamental principle centered on the importance of the interaction of knowledge, daily practice, social representations and affectivity. This perspective countered the conception of education based solely on its cognitive aspects, which emphasized the accumulation of information and memorization, without the necessary contextualization and involvement of subjects. Such an approach ends up implying the legitimation of health knowledge that tends to mystify scientific knowledge and disregards the experiences of health and disease of the population<sup>9</sup>. This importance in which education occupies in health practices is a critical point of reflection which has always been present in Virgínia's work.

In 1999 Virgínia returned to Minas Gerais and was transferred to the René Rachou Research Center (CPqRR), headquarters of Fiocruz-Minas, where she created the Laboratory of Health Education and Environment (LAESA). Through an integrated approach with the participation of the population and the commitment of local authorities, LAESA has developed studies on neglected diseases (leishmaniasis, schistosomiasis, dengue, leprosy, malaria and Chagas' disease), and infectious and chronic diseases (tuberculosis, Aids, Asthma, cancer, diabetes and mental health); as well as research in the area of sexual and reproductive health of adolescents and gender studies, especially in regards to the health of men.

LAESA maintained a strong commitment to scientific dissemination, developing a series of educational products and resources, with emphasis on the themes on cancer, human health and dengue, such as "*Evidengue*", a cover for water collecting dishes for plant pots developed in 2007. At Fiocruz-Minas, Virgínia coordinated the implementation of the Post-Graduate program in Health Sciences and assisted in the implemen-

tation of the Post-Graduate program in Collective Health in 2011.

In addition to her career as a scientist, Virgínia published books on poetry and received several awards as a poet: Poetry Contest Vinicius de Moraes, from the city hall of Rio de Janeiro (1994), Poetry Contest of Vale of CVRD (1995), The Prize Raul de Leoni of the Brazilian Union of Writers (1998, 2000), Women's Academy of Letters in Minas Gerais and the silver medal in the poetry contest "Brasil – 500 Anos" (MG).

### Integration of knowledge: the academic work and politics of Virgínia Schall

The text cloud of Virgínia's bibliographical and technical production, illustrated in figure 1, shows the richness of themes and identifies the concepts which circulates around the main theme of Health; present in 131 articles, 27 books (academic and literary), 39 book chapters, 21 texts in newspapers and/or dissemination, 48 informative/educational products/materials, 28 events (exhibitions, seminars, etc.) and two patents. All published and produced between 1976 and 2015.

Virgínia's interest towards the prevention of schistosomiasis had its origin from the studies on the presence of autochthonous schistosomiasis in Rio de Janeiro. In 1984, during a vacation in the Northeast of Brazil, she observed the presence of the Avelós plant, from the family *Euphorbiaceae*, in arid soil. When informed by a taxi driver

about the toxicity of the plant, she collected the material to study it. Virgínia devoted many years to the study of the latex and later to the "crown of Christ", from the family *Euphorbiaceae*, which presented a positive result as a molluscicide for the snail responsible in transmitting schistosomiasis. In 1988, the process of latex extraction from the "Crown of Christ" (*Euphorbia splendens* var. *Hisloppi*) and its application in the combat against molluscs vectors of schistosomiasis was patented by Fiocruz<sup>10</sup>.

In parallel to the research on the behavior of *Biomphalaria* and the use of the "crown of Christ" as a natural molluscicide, starting from 1987, Virgínia began studies on the prevention and control of infectious and parasitic diseases through social participation and Health Education among children and adults. This approach was stimulated by a specialization course in Health Education at the Nucleus of Educational Technology for Health (NUTES) in UFRJ and later deepened in the doctorate in Education at PUC-RJ (1991-96) on *Health and affectivity in childhood: What children reveal and its importance in schools*, supervised by Regina de Assis and Lúcia Rabello de Castro.

Historically, the approximation between Education and Health did not necessarily mean the constitution of a unit. Pedagogical actions and practices, as well as health interventions - whether in the process of elaboration or transmission of information - have always reflected the adopted conception of health and illness. The hegemo-

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traduzida



Figure 1. Cloud of titles from the bibliographical e technical production of Virgínia Schall generated from the Lattes Curriculum Vitae Platform. (<http://lattes.cnpq.br/1247570488977577>) (CNPq).

ny of the biomedical model perpetuates health practices and, in turn, favor curative actions, with preventive and educational actions confined to a restricted segment, such as health centers and health campaigns. This dichotomy evidenced the lack of unity between education and health, with educational practices often developed in an instrumental manner, subordinate and secondary in health practices<sup>11</sup>.

In Brazil, health education was developed in association to control campaigns of major infectious-parasitic diseases endemic in the country. Characterized from the beginning as a pedagogy of hygienist background and a practice of vertical orientation, in the 1950s, this approach had as a counterpoint the radical change of procedures expressed in the work of Hortênsia de Hollanda, from the National Department of Rural Endemics (DNERU)<sup>12</sup>. Virginia aligned herself with this model which reaffirms social interaction with the social determinants of the health-disease process, aiming towards social transformation by expanding the power of the popular segment, such as is the case of popular education and Health Education<sup>13</sup>.

As a consequence, it can be said that the current conception of health education, predominant in theoretical reflections, expresses the theoretical-practical process which aims to integrate the various kinds of knowledge - scientific, popular and common sense - enabling the subjects involved; critical vision, responsible and autonomous participation<sup>14-16</sup>. However, although conceptually health is no longer defined simply as the absence of disease, in contemporary societies, actions are still directed towards disease prevention in the biomedical model. As pointed out, perhaps the change in nomenclatures expresses more in a change of designation than a true paradigm shift.

Interested in the history and memoirs of the field of Health in Brazil, in 1998, Virginia reconstructed the path of Hortênsia de Hollanda in the field of Health Education, highlighting the pioneer work of the educator<sup>12</sup>. In 2001, she published the book "Conto de Fatos", centered on the life history of several researchers of Fiocruz and received the Alejandro José Cabassa Prize from the Brazilian Union of Writers of Rio de Janeiro. From an early age, she was fascinated by the contingent social aspects of scientific practices and its discoveries. In her words: *I wanted to know more about the people who transformed the world, who are present at every minute of our daily life, from the moment we get up and turn on a light to*

*when our lives are threatened and science protects us*<sup>17</sup>. Interested in the factors present in process of scientific discovery and the history of science itself, she studied the lives of other prominent scientists and the constitution of fields such as parasitology, education, and collective health.

Consistent with this perspective, much of her work was devoted to an amplified understanding of research and its technological production, pioneering in methodological innovations of development and evaluation of the use of various educational resources, as already pointed out.

To understand Virginia's role in scientific dissemination, it is important to note that this field, despite its real fragility over time, has at least two centuries of history. In the 1960s, under the influx of transformations in science education in the United States, a renewal educational movement was initiated in Brazil, based on the importance of experimentation for science teaching. This movement led to the emergence of science centers scattered throughout the country which, although more directly linked to formal education, contributed to actions of popularizing science. From the 1980s, new outreach dissemination activities began to emerge in the media, including the creation of science sections in large circulation newspapers, science-oriented TV shows and specialized magazines in the area. Since then, following international trends, dozens of science centers have been created all over the country since the early 1980s<sup>18</sup>.

However, in these scientific dissemination activities, the main approach is still the so-called "deficit model", which in a simplistic way, sees the population as a gathering of science illiterates which must receive the redeeming content of a decontextualized and encapsulated knowledge. Important cultural aspects in any dissemination process and the interfaces between science and society are rarely considered<sup>18</sup>.

Against this background, Virginia's work in the area of scientific dissemination and science popularization became even more relevant in 1991, with the idealization of the Fiocruz *Museu da Vida* (Life Museum). From 1993, the proposal was re-dimensioned, becoming a broader collective program. Today, the Museum of Life is an area of integration between science, culture and society, open to the public, focused on information and education in science, health and technology, through exhibitions, interactive activities, multimedia, theater, video and laboratories.

In the areas originally conceived by Virginia are the *Ciência em Cena*, which is an adapted

theater in one of the tents of the United Nations Conference on Environment & Development, held in Rio de Janeiro in 1992. Virgínia requested the donation of the tent to the city hall and it has since housed plays about Health, Science and Art at Fiocruz. In the Museum, Virgínia coordinated the project *Laboratórios de Percepção e Emoção*, which allows experiences associated with the perception phenomena, as well as developing, together with other professionals, the *Coloring Fiocruz* almanac, aimed at the scientific dissemination and historical facts of researchers (pioneers and current) of Fiocruz. For her work carried out in 1991 she received the José Reis Prize for Scientific and Technological Dissemination from CNPq, also participating as a jury member of the prize since 1992.

Still in the context of science popularization, from 1997 to 2000 she was a consultant for the TV channel Canal Futura, collaborating with themes and contents for the *Viva legal* program, whose objective was to broaden the dissemination of knowledge and generate critical discussions about health and the quality of life. In 2002 she received the Francisco de Assis Magalhães Gomes Prize for Scientific Dissemination from the Science and Technology State Secretary of Minas Gerais.

She actively participated in the dissemination of the National Week of Science and Technology activities and coordinated the Minas-Sul Regional Health and Environment Olympics (OBSMA). Created in 2011, OBSMA is an educational project promoted by Fiocruz which aims to stimulate the improvement of health and environmental conditions in Brazil and the development of interdisciplinary activities in the country's public and private education networks. In addition, Virgínia conceived the project *As quatro Estações do Corpo: da célula ao cérebro*, a museum space geared towards life and health sciences inside the Museum of Natural History at UFMG.

### The legacy of Virgínia Schall

Virgínia contributed to the construction and dissemination, in different multidisciplinary contexts of research and practices, of a broad concept of health which surpassed the perspective of health conceived as only the absence of disease. She was also equally critical of a behavioral approach, focused mainly on the biological aspects of the health-disease binomial, which attributes to the subjects the responsibility of adopting preventive behaviors which are mechanical and de-

contextualized. This broad conception of health, together with important critical approaches of pedagogy and psychology with a constructivist learning basis, is rooted in the innumerable academic production and development of materials and practices in the field of Health Education, which formed and still forms professionals and researchers related to this theme, in Brazil and Latin America.

Based on an inter and multidisciplinary perspective<sup>19</sup> Virgínia has integrated different disciplinary fields in the development of studies and interventions about: prevention and control of infectious and parasitic diseases, education and health promotion, educational technologies and health information, environment and science, teaching of science and formal and non-formal learning spaces. Her qualified and diversified academic and literary production was fundamental for the unfolding and constitution of the fields of Health Education, Science Teaching and Scientific Dissemination in Brazil.

Many were the paths opened by Virgínia. Here we aimed to highlight the main contributions in the fields of knowledge which she has transited and integrated. However, this is still a limited outlook which beckons for a deepening in perspective. Based on this, a project of Virgínia's biography is underway, which includes a collection of her main scientific articles and the development of a biographical repository Virgínia Schall, which aims to organize, disseminate and provide open access to all her academic and literary production as well as her products. This will be integrated into ARCA (<http://www.arca.fiocruz.br/>), the institutional repository of Fiocruz which gathers and gives visibility to the technical-scientific production of the institution, representing a significant part of the health research effort in Brazil<sup>20</sup>.

In regards to her material and documental legacy, a collection or fund with her name is being organized with all the written documents, images/photos, interviews and other records of health education in Brazil, based on the trajectory of the researcher. This will be donated by Virgínia's family and includes technical processing, including the cleaning, cataloging, classification, indexing and inclusion of a bibliographic database and archival collection of "Casa de Oswaldo Cruz (COC)" in Fiocruz-RJ. It will also be available online.

To celebrate her legacy, an event was held in her honor in June 2016, where the Tent of Science of the Museum of Life was named "Tent of Sci-

ence Virginia Schall". A tribute which celebrates the dozens of children and adults who today know a little more about the secrets of science, health and life because Virginia existed.

Thus, in remembering her life and professional history, a window opens into the memory and trajectory of the construction of the collective health field in the country. By integrating Health, Education and Science, poetically, Virginia made the world a little more colorful. Artist of herself and of the world, she unraveled enigmas, celebrated life and thrilled us in the process.

### **Collaborations**

DN Pimenta conceived and drafted the article. SS Monteiro and M Struchiner participated in its elaboration and revision.

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